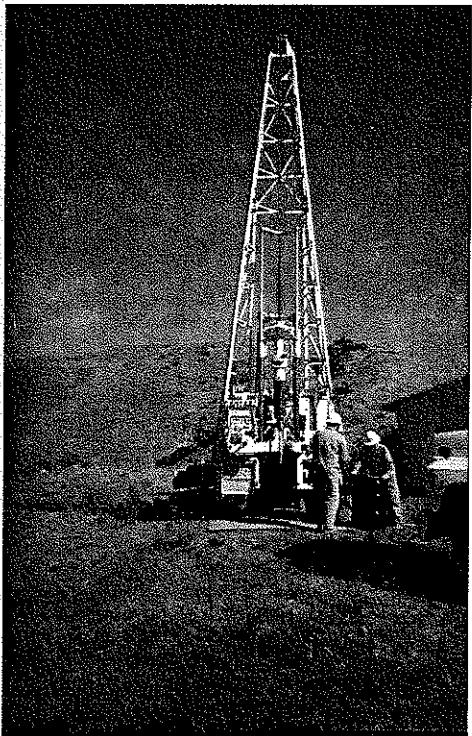


# VANDENBERG AIR FORCE BASE

## Final Record of Decision and Remedial Action Plan for Site 18



**UNITED STATES AIR FORCE**

*30th Space Wing Division*

June 2004



**MWH**

**FINAL**  
**RECORD OF DECISION AND REMEDIAL ACTION PLAN**  
**SITE 18**  
**VANDENBERG AIR FORCE BASE, CALIFORNIA**

**Prepared for:**

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**June 2004**

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## ACRONYMS AND ABBREVIATIONS

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
30 CES/CEVR	Vandenberg Environmental Management Flight
bgs	below ground surface
BTV	background threshold values
CAB	Community Advisory Board
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMECC	California Military Environmental Coordination Committee
DTSC	Department of Toxic Substances Control
FFS	focused feasibility study
FFSRA	Federal Facilities Site Remediation Agreement
GIS	geographic information system
IRP	Installation Restoration Program
Jacobs	Jacobs Engineering Group Inc.
mg/kg	milligrams per kilogram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
O&M	operation and maintenance
PCBs	polychlorinated biphenyls
PRG	preliminary remediation goal
PVC	polyvinyl chloride
RAO	remedial action objective
RAP	Remedial Action Plan
RI	Remedial Investigation
ROD	Record of Decision
RWQCB	California Regional Water Quality Control Board
SAIC	Science Applications International Corporation
SVOC	semivolatile organic compound
TRPH	total recoverable petroleum hydrocarbons
USEPA	U. S. Environmental Protection Agency
UXO	unexploded ordnance
VAFB	Vandenberg Air Force Base
VOC	volatile organic compound

## **1.0 DECLARATION**

### **1.1 SITE NAME AND LOCATION**

Vandenberg Air Force Base  
Site 18  
Santa Barbara County, CA

### **1.2 STATEMENT OF BASIS AND PURPOSE**

This decision document, a Record of Decision and Remedial Action Plan (ROD/RAP) has been prepared to present the selected remedy for Site 18, Landfill 3/4 at Vandenberg Air Force Base (VAFB) to satisfy the legal requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The ROD is the decision document under the CERCLA process, whereas the RAP is the decision document under the California Health and Safety Code (Section 25356.1). This decision is based on the Administrative Record for this site and complies with 40 Code of Federal Regulations (CFR), Part 300. The format of this ROD/RAP is consistent with the non-binding guidance provided in the U.S. Environmental Protection Agency's (USEPA) *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Documents* (USEPA, 1999).

The purpose of this ROD/RAP is to set forth the remedial actions to be conducted at Site 18 that were presented in the Site 18, Landfill 3/4, Final Focused Feasibility Study (FFS) Report (Jacobs Engineering Group Inc. [Jacobs], 1998), and to document the selection of remedial objectives and essential actions, to include essential Engineering Controls (ECs) and Institutional Controls (ICs) as the selected remedy for Site 18.

The United States Air Force, the Department of Toxic Substances Control (DTSC) of the California Environmental Protection Agency, and the State of California Regional Water Quality Control Board (RWQCB), Central Coast Region, concur with the selected remedy.

### **1.3 ASSESSMENT OF THE SITE**

The response action selected in the ROD/RAP is necessary to protect the public health and welfare and the environment from actual or threatened releases of pollutants or contaminants to the environment.

### **1.4 DESCRIPTION OF THE SELECTED REMEDY**

Based on alternatives evaluated in the FFS (Jacobs, 1998), Alternative 2, Engineering and Institutional Controls, has been selected as the preferred remedy at Site 18. This alternative would include restricting site access and future development. Because of potential unexploded ordnance (UXO), only screening level data were collected within the site boundaries. Therefore, risks to future on-site receptors are uncertain and will be reassessed later when technology develops and/or through continual water monitoring results. Institutional controls are necessary at Site 18 to restrict access to and prevent potential development of the site area that may be incompatible with the past site use as a base landfill.

The selected remedy consists of the following:

- The VAFB General Plan will be amended to record the land use designations and restrictions.
- The boundaries of the site will be defined in the VAFB Geographical Information System (GIS).
- Five signs will be posted at regular intervals around the site boundary to warn potential site visitors and to define Site 18 boundaries (Figure 2-3).
- Monitoring wells 18-MW-4, 18-MW-5 and 18-MW-6, at or near the site, will be monitored at least once every five years for contaminants of concern.
- Appropriate regulatory agencies will be notified of proposed land use changes that are inconsistent with the use restrictions and assumptions described herein or property interest transfers in accordance with CERCLA §120(h).
- Conduct a protectiveness review and generate a report every five years to document site status and report land use changes.



- Vandenberg Environmental Management Flight, Restoration (30 CES/CEVR) will be responsible for administering all necessary remedial actions, to include the Site 18 institutional controls.

## **1.5 ROD DATA CERTIFICATION CHECKLIST**

The following information is included in the Decision Summary of this ROD/RAP. Additional information can be found in the Administrative Record file for this site.

- Chemicals of concern and their respective concentrations – Page 2-4 to 2-7.
- Baseline risk represented by the chemicals of concern – Page 2-8 to 2-9.
- How materials constituting principal threats are addressed – Page 2-15.
- Current and reasonably anticipated future land use – Page 2-8.
- Estimated capital, annual operations and maintenance (O&M), and total present value costs – Page 2-18 to 2-19.
- Key factors that led to selecting the remedy – Page 2-12 to 2-13.
- A description of the selected remedy – Pages 2-16.

## **1.6 STATUTORY DETERMINATIONS**

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable. This remedy uses institutional controls to restrict access to potentially affected media and to prevent any site use that may not be compatible with past site activities.

The remedy for Site 18 does not satisfy the statutory preference for treatment as a principal element of the remedy because due to the potential presence of UXO on the site, no deep soil samples could be collected within the boundaries of the landfill. Therefore no contaminants have been identified at Site 18 that require treatment.

Because this remedy will result in potential contaminants remaining on site above levels that will allow for unlimited use and unrestricted exposure, reviews will be conducted in accordance with


CERCLA §121(c) and the National Contingency Plan (40 CFR §§ 300.430(f)(4)(ii) and 300.430(f)(5)(iii)(C)) at least every five years after commencement of the remedial action to assure that the remedy continues to provide adequate protection of human health and the environment.

## 1.7 AUTHORIZING SIGNATURES

The undersigned authorized representatives concur with the Record of Decision for the Selected Remedy at Site 18, Landfill 3/4, Vandenberg Air Force Base, California.

### 1.7.1 Signature for the Air Force

Signature:

  
\_\_\_\_\_  
L. DEAN FOX, Maj Gen, USAF  
The Civil Engineer  
DCS/Installations & Logistics

Date: 2 June 04

**1.7.2 Signature for the DTSC**

**Signature:**



John E. Scandura, Chief  
Southern California Operations  
Office of Military Facilities  
Department of Toxic Substances Control  
California Environmental Protection Agency

**Date:**

4/8/04

**1.7.3      Signature for the RWQCB**

**Signature:**



Roger W. Briggs  
Executive Officer  
California Regional Water Quality Control Board  
Central Coast Region

**Date:** 4-6-04

## **2.0 DECISION SUMMARY**

### **2.1 SITE NAME, LOCATION AND BRIEF DESCRIPTION**

Site 18 is located on Vandenberg Air Force Base in Santa Barbara County, California. Site 18 is in South Vandenberg on the eastern edge of Lompoc Terrace, south of the Santa Ynez River and west of Lompoc Canyon (Figure 2-1). The site is immediately east of Manzanita Road, approximately 3,000 feet south of Mesa Road, and covers approximately 2 acres (Figure 2-2). Site 18 was used as a Base Landfill (Landfill 3/4), from the mid-1960s to the early 1970s, primarily for the disposal of construction waste. No buildings are present within the site boundaries. The site is presently covered with soil and natural vegetation.

Cleanup of Installation Restoration Program (IRP) sites at VAFB is conducted in accordance with a signed Federal Facilities Site Remediation Agreement (FFSRA), which was negotiated with and is overseen by the California DTSC, the lead oversight agency, and the California RWQCB, the support agency. The FFSRA ensures full cooperation between the Air Force and the oversight agencies to accelerate and streamline the remediation process at VAFB, to the maximum extent possible, consistent with applicable state and federal laws.

### **2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES**

Disposal operations at Site 18 started in the mid to late 1960s. Materials disposed of at the site included primarily construction debris from a launch complex and power plant. Visual inspections of the site indicate that surface debris, including asphalt, broken wooden pallets, and pieces of polyvinyl chloride (PVC) piping, have been deposited. A records search indicates that radioactive materials were not used, stored, or disposed of at the site. This records search is documented in an RI report dated 14 April 1997 (Jacobs, 1997).

Site 18 was investigated under the IRP at VAFB as part of the basewide program to investigate hazardous waste sites for their potential impact to human health and the environment. The RI

was conducted in accordance with a work plan approved by the DTSC and the RWQCB. Investigation activities conducted for Site 18 included the following: records search and interviews, aerial photograph review, well inventory, soil gas survey, geophysical survey, soil and groundwater sampling, and data analyses and validation (Jacobs, 1997). By letter dated 10 March 1997, both the DTSC and RWQCB concurred with the recommendation for no further investigation at Site 18. There have not been any enforcement activities at this site.

## **2.3 COMMUNITY PARTICIPATION**

The review process for the ROD/RAP is the means by which the public may provide input into the decision-making process and is a critical component of the remedy selection process.

The ROD/RAP was submitted to the VAFB Community Advisory Board (CAB) for review. Comments were provided by the CAB and are included in the Responsiveness Summary, which is Section 3.0 of this ROD/RAP.

30 CES/CEVR issued a fact sheet in August 2002 and distributed it to key community leaders, information repositories, and interested parties. An announcement of the ROD/RAP availability for public review was made on September 1, 2002 in the Lompoc Record and the Santa Maria Times.

The ROD/RAP was submitted for public review and comment for a period of one month. The public review and comment period began September 3, 2002 and extended through October 2, 2002. No public comments were submitted during the public comment period.

In addition, a public meeting was conducted on September 12, 2002. A briefing on the proposed plan was presented and a formal oral comment period was made available for those who wanted to voice their comments. A transcript of the public hearing proceedings is included in the Responsiveness Summary.

## **2.4 SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION**

This ROD/RAP addresses potential soil and groundwater contamination at a former landfill. Site 18 was investigated under the IRP at VAFB as part of the basewide program to investigate hazardous waste sites for their potential impact to human health and the environment. A RI was conducted and a report was prepared documenting the field activities and sampling results (Jacobs, 1997). By letter dated 10 March 1997, both the DTSC and the RWQCB concurred with the recommendation for no further investigation at Site 18. Although no active responses are warranted at Site 18, its historical use as a landfill means that a potential exists for UXO within the landfill boundaries. Therefore, the Institutional Controls alternative was chosen to restrict the site from future development that might be incompatible with its past landfill use.

## **2.5 SITE CHARACTERISTICS**

A number of investigation activities have been conducted for the Site 18 RI including the following: records search and interviews, aerial photograph review, well inventory, geophysical survey, and soil gas survey. Data collected in an earlier investigation by Science Applications International Corporation (SAIC) was also reviewed by Jacobs for use in the RI. SAIC collected subsurface soil samples from four deep borings outside the site boundaries and from five shallow borings, three of which were on or within the boundaries of Site 18. Jacobs used the SAIC data for screening purposes only because the data did not meet data quality objectives for risk assessment. Analysis of SAIC's data revealed low concentrations of metals in soil and groundwater samples. Total recoverable petroleum hydrocarbons (TRPH) was also detected in a shallow soil sample collected outside the site boundaries.

Based on the results of the records search and interviews, it was determined that only construction debris was reported to have been disposed of at Site 18. There is no direct evidence that UXO has been disposed of at Site 18. However, there is some uncertainty in the disposal records for all landfills of this era. Therefore, the potential for UXO disposal exists. By reviewing historical aerial photographs and conducting the geophysical survey, Jacobs reduced



the extent of the landfill significantly compared with the boundaries previously estimated by SAIC (1990).

In addition to the historical review, Jacobs advanced four soil borings on or near the landfill perimeter. Three of the borings were converted to groundwater monitoring wells (18-MW-4, 18-MW-5 and 18-MW-6). These wells were sampled along with three previously existing wells (18-MW-1, 18-MW-2 and 18-MW-3) located in Lompoc Canyon approximately 2,400 feet downgradient from Site 18. Due to the potential presence of UXO at any VAFB landfill, deep soil borings could not be advanced directly within the landfill boundaries at Site 18; however, one angle boring was advanced to sample beneath the landfill. Detailed discussions of the sampling rationale and analytical results are presented in the RI Report for Site 18 (Jacobs, 1997). Brief summaries of the findings of the soil and groundwater investigations are presented in the following sections. Jacobs' RI soil and groundwater sample locations are shown on Figure 2-2.

### **2.5.1 Findings of Site 18 Soil Investigation**

Jacobs advanced four borings outside the landfill boundaries. Three of these borings were deep soil borings, which were sampled and then converted to groundwater monitoring wells (18-MW-4, 18-MW-5 and 18-MW-6). The fourth boring was an angle boring (18-JB-1), which was advanced at an angle of 30 degrees from vertical to sample beneath landfill material. Groundwater was encountered at depths of more than 200 feet below ground surface (bgs). Soil and groundwater samples were collected and data analysis and validation was performed (Jacobs, 1997). Soil samples were analyzed for metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), TRPH, polychlorinated biphenyls (PCBs) and organochlorine and organophosphorus pesticides. No VOCs, SVOCs, PCBs or pesticides were detected in the soil samples. Inorganic detections above background threshold values (BTVs) but below action levels and all organic detections are reported in Table 2-1.

### 2.5.1.1 Metals

No metals above background threshold concentrations were detected in the shallow soil samples (0-10 feet bgs) collected from the four borings. Barium, copper, and nickel were reported above background in soil samples collected from 50 to 225 feet bgs (Table 2-1). However, all detected concentrations were only slightly higher than background, and were significantly lower than residential preliminary remediation goals (PRGs). It can be concluded that the metals concentrations likely represent natural soil variations.

### 2.5.1.2 Total Recoverable Petroleum Hydrocarbons

TRPH was only detected in Boring 18-MW-5 in samples collected from 85 to 86 feet bgs and 224 to 226 feet bgs at 15.2 and 32.7 mg/kg, respectively (Table 2-1). These results are well below the leaking underground fuel tank (LUFT) action level of 100 mg/kg. TRPH was not detected in the shallow soil samples collected from 18-MW-5 (Jacobs, 1998).

**TABLE 2-1**  
**CHEMICALS DETECTED IN SOIL**

Analyte	BTV* (mg/kg)	Action Level** (mg/kg)	Boring Identification	Sample Depth (feet bgs)	Detected Concentration (mg/kg)
Barium	35	5,400 (PRG)	18-MW-4	50.0 to 51.0	36.7
			18-MW-5	225.0 to 226.0	43.7
Copper	37	3100 (PRG)	18-MW-5	125.0 to 126.0	38.8
Nickel	10	1600 (PRG)	18-MW-4	50.0 to 51.0	14.3
			18-MW-5	125.0 to 126.0	12.8
				225.0 to 226.0	10.5
			18-MW-6	205.0 to 206.0	13
			18-JB-1	50.0 to 52.0	11.3
TRPH		100 (LUFT)	18-MW-5	85.0 to 86.0	15.2
				225.0 to 226.0	32.7

bgs – below ground surface

mg/kg – milligrams per kilogram

\*BTV for subsurface dune sand.

\*\*PRG: USEPA, 2001 Region IX Preliminary Remediation Goals (PRGs).

LUFT – LUFT Task Force, 1989 California Leaking Underground Fuel Tank (LUFT) Field Manual.

## **2.5.2 Findings of Site 18 Groundwater Investigation**

Groundwater samples were collected from six monitoring wells at Site 18. Three monitoring wells were located adjacent to the site boundaries (one upgradient and two downgradient), and three were in Lompoc Canyon approximately 2,400 feet downgradient from Site 18 (Figure 2-2). Groundwater samples were analyzed for metals, VOCs, SVOCs, TRPH, fluoride, PCBs, organochlorine pesticides and organophosphorus pesticides. No organic or inorganic compounds were detected in groundwater samples collected from 18-MW-1, 18-MW-2 or 18-MW-3. No VOCs, fluoride, PCBs or pesticides were detected in the groundwater samples. Inorganic compounds detected above BTVs and all reported organic compounds are included on Table 2-2.

### **2.5.2.1 Metals**

Zinc was the only metal detected above BTVs. It was detected in the three groundwater samples collected from 18-MW-4, -5 and -6 at concentrations of 200 µg/L, 200 µg/L and 350 µg/L respectively (Table 2-2). Although the detected concentrations are well above the BTV of 80 µg/L, the concentrations from the wells downgradient of the site do not differ significantly from the concentrations detected in the upgradient well (18-MW-4). Additionally, all concentrations are well below the action level for zinc.

### **2.5.2.2 Total Recoverable Petroleum Hydrocarbons**

TRPH was detected in low concentrations in the groundwater samples collected from 18-MW-4, -5 and -6 (Table 2-2). The concentrations reported were well below the LUFT action level of 1,000 µg/L. Since these wells were completed approximately 250 feet bgs, it is unlikely that these detections are the result of contaminant releases from the fill area.

### **2.5.2.3 Semivolatile Organic Compounds**

Bis(2-ethylhexyl)phthalate, a common laboratory or field contaminant, was the only SVOC reported during the groundwater sampling event. This compound was reported in a sample collected from 18-MW-4 at a concentration of 78 µg/L, which exceeded the residential PRG of

4.8 µg/L. Because 18-MW-4 is located upgradient of the fill area, it is unlikely that the contaminant is site related.

Another groundwater sample was collected from 18-MW-4 during the supplemental RI activities in June 1995 to confirm the earlier detections of bis(2-ethylhexyl)phthalate. Bis(2-ethylhexyl)phthalate was not detected in the groundwater sample.

Because 18-MW-4 is an upgradient well, the compound is a common field and laboratory contaminant, and the presence of the compound could not be confirmed, bis(2-ethylhexyl)phthalate is not considered a site contaminant of potential concern.

**TABLE 2-2**  
**CHEMICALS DETECTED IN GROUNDWATER**

Analyte	BTV* (µg/L)	Action Level** (µg/L)	Well Identification	Detected Concentration (µg/L)
Zinc	80	5000 (LUFT)	18-MW-4	200
			18-MW-5	200
			18-MW-6	350
TRPH		1000 (LUFT)	18-MW-4	570
			18-MW-5	160
			18-MW-6	240
bis (2-ethylhexyl) pthalate		4.8 (PRG)	18-MW-4	78

µg/L – micrograms per liter

\*BTV for groundwater

\*\*PRG: USEPA, 2001. Region IX Preliminary Remediation Goals (PRGs).

LUFT: LUFT Task Force, 1989. California Leaking Underground Fuel Tank (LUFT) Field Manual.

### 2.5.3 Findings of Site 18 Soil Gas Survey

The results of the soil gas survey conducted at Site 18 did not show the presence of landfill gas, nor were any VOCs detected in soil gas samples collected.

## **2.6 CURRENT AND POTENTIAL FUTURE LAND AND WATER USES**

Site 18 is currently unused and located in an undeveloped area on South Base that is covered by coastal sage scrub. The VAFB GIS land use layer currently classifies the present and future land use as undefined open space. "Open space" means "undeveloped space," and examples of permissible uses on land classified as open space include, but are not limited to, conservation areas, forest stands, grazing areas, and required buffer space. Examples of impermissible uses include, but are not limited to, ground-disturbing activities and recreational areas.

The results of the RI indicate that groundwater downgradient of Site 18 has not been impacted. There are no potable water wells at Site 18 and there are currently no plans to use groundwater at Site 18 for potable purposes.

## **2.7 SUMMARY OF SITE RISKS**

A study of records indicates that materials disposed of at the site include primarily construction debris. The site boundaries were walked and the site was visually inspected. Additionally, aerial photographs of the site were studied. These visual inspections of the site indicated surface debris, including asphalt, broken wooden pallets, and pieces of PVC piping. Due to the potential presence of UXO, no deep soil borings could be advanced directly within the landfill boundaries at Site 18; however, an angle boring was advanced to sample beneath the landfill (Jacobs, 1997). A potential still exists for unknown substances/materials to exist below the surface at Site 18 that may create a risk should the land use change in the future.

Screening data (shallow soil samples) collected within the boundaries (SAIC, 1990), deep soil borings at or near the perimeter, and the angle boring extending beneath the landfill (Jacobs, 1997) adequately characterized the site. Perimeter wells were also installed to monitor any potential leachate from within the landfill boundaries (Jacobs, 1997). The analytical results from outside the site boundaries were considered representative of site conditions because of the close proximity of the borings to the site boundaries. Because wastes were deposited directly to the

ground surfaces, potential contaminants should have been carried or leached to these off-site locations.

No organic compounds or metals above background levels were reported in the soil samples collected from 0 to 10 feet bgs in borings drilled outside the site boundaries. Data collected within the site boundaries from a previous investigation (SAIC, 1990) could not be used to conduct a quantitative human and ecological risk assessment. However, these data were used for screening purposes. The evaluation indicated that the concentrations of metals reported in shallow soil samples do not pose a risk or hazard to on-site receptors. Based on the data collected for the RI, Site 18 does not pose a risk or hazard to human or ecological receptors. However, due to the lack of deep boring data within the site boundaries, an uncertainty exists.

The response action selected in this ROD/RAP is necessary to protect the public health or welfare of the environment from actual or threatened releases of hazardous substances into the environment.

## **2.8 REMEDIAL ACTION OBJECTIVES**

Soil analytical results from the RI indicate that the site does not pose a threat or hazard to human health or ecological receptors. Results of the groundwater analyses indicate that groundwater downgradient of the site has not been impacted through leaching of materials. Therefore, no active response actions are warranted. However, due to the lack of deep boring data within the site boundaries, some risks may not be characterized. If unknown contaminants exist below ground surface within the site boundaries, human exposure to the contaminants could occur if the site were developed. Therefore, the remedial action objective (RAO) for Site 18 is to restrict future access and development, thereby mitigating future potential exposure to contamination and maintaining land use as open space.

## **2.9 DESCRIPTION OF ALTERNATIVES**

In coordination with the DTSC and RWQCB, the Air Force prepared a FFS to evaluate actions that would minimize the potential risks to future on-site receptors. An evaluation of the presumptive remedy for landfills was conducted based on the findings of the RI and was determined to be valid (Jacobs, 1998). Presumptive remedies are preferred technologies based on historical patterns of remedy selection and the USEPA's evaluation of performance data on technology implementation (USEPA, 1996). The USEPA established source containment as the presumptive remedy for municipal landfills in September 1993. This presumptive remedy should also be applied to all appropriate military landfills (USEPA, 1996). The components of the containment presumptive remedy are:

- Landfill cap
- Groundwater control to contain plume
- Leachate collection and treatment
- Landfill gas collection and treatment
- Institutional controls to supplement engineering controls

As discussed in the RI Report (Jacobs, 1998), the only component of the presumptive remedy applicable to Site 18 is institutional controls.

Based on USEPA guidance (USEPA, 1996), if the presumptive remedy is applicable, a FFS is required to document the site-specific information that substantiates selecting the presumptive remedy.

The FFS is not required to account for the full range of alternatives that would be addressed in a standard feasibility study, but rather the applicable components of the presumptive remedy and the no action alternative. The FFS for Site 18 evaluated two alternatives: institutional controls and no action.

### **2.9.1 Alternative 1 - No Action**

No action involves no remedial actions except a report every five years to document site status. It is required that a no action alternative be retained for detailed evaluation as a baseline for comparison.

### **2.9.2 Alternative 2 - Institutional Controls**

Institutional controls are a subset of land use controls and are primarily legal mechanisms imposed to ensure the continued effectiveness of land use restrictions as part of a remedial decision (Deputy Under Secretary of Defense, 2001). Under the current VAFB General Plan, current land use at Site 18 is open space. There are no plans to change the land use from open space to another designation in the VAFB General Plan. To ensure that no unauthorized activities are conducted, signs would be posted stating that the site has been investigated under the IRP and any activities conducted at the site must have prior approval of the 30 CES/CEVR. Other components of the institutional controls alternative include recording the boundaries of the site in the VAFB GIS, recording the land use restrictions in the VAFB GIS, and notifying the regulatory agencies should the land use change or the property be transferred to another owner including federal to federal transfers (California Military Environmental Coordination Committee [CMECC], 1998). Alternative 2 also includes a report every five years to document site status and report land use changes. Any change in land use would be done in accordance with applicable requirements in 40 CFR Part 300. Land use changes include (1) a change in land use classification that is inconsistent with the current open space land use designation in the VAFB General Plan (Air Force, 30th Space Wing, 2000); (2) any action that may disrupt the effectiveness of the remedial action (e.g., excavation or a construction project); and (3) any other action that might alter or negate the need for institutional control (e.g., a plan to remediate the site to allow for unrestricted use) (CMECC, 1998). VAFB will comply with the notice and deed requirements of CERCLA § 120(h).



### **2.9.3 Evaluation criteria**

The objective of the remedial action is to restrict access and future development at Site 18. The no action and institutional controls alternatives developed for Site 18 were evaluated against seven evaluation criteria in the FFS to discover which alternative best meets the objective of the remedial action. In addition, Section 25356.1 (d) of the Health and Safety Code requires that ROD/RAPs be based on the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The NCP identifies two additional evaluation criteria that are included in this ROD/RAP: regulatory agency acceptance and community acceptance. The last two criteria are referred to as modifying criteria. Since the Air Force is required under CERCLA to comply with the NCP, the following nine evaluation criteria apply.

1. Overall Protection of Human Health and the Environment

Addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. Compliance with Applicable or Relevant and Appropriate Requirements

Addresses whether or not a remedy will meet all applicable or relevant and appropriate federal and state environmental laws and regulations.

3. Long-term Effectiveness and Permanence

Refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met.

4. Short-term Effectiveness

Addresses the period of time needed to complete the remedy, and any adverse impact on human health and the environment that may be posed during the construction and implementation period, until the cleanup standards are achieved.

5. Reduction of Toxicity, Mobility and Volume through Treatment

Refers to the ability of a remedy to reduce the toxicity, mobility, and volume of the hazardous substances or constituents present at the site.

6. Implementability

Refers to the technical and administrative feasibility of a remedy, including the availability of materials and services needed to carry out a particular option.

7. Cost

Evaluates the estimated capital and operation and maintenance costs of each alternative.

8. Regulatory Agency Acceptance

Indicates whether, based on the review of the information, the applicable regulatory agencies would agree with the preferred alternative.

9. Community Acceptance

Indicates whether community concerns are addressed by the remedy and whether or not the community has a preference for a remedy.

## **2.10 COMPARATIVE ANALYSIS OF ALTERNATIVES**

An evaluation of the two alternatives in relation to the nine decision-making criteria is summarized as follows:

1. Overall Protection of Human Health and the Environment

Only Alternative 2, Institutional Controls, meets the RAO by restricting future development. Because full characterization of the site has not been possible, the principal site threat is the possibility of UXO and other contamination. Consequently, human health and the environment are protected by restricting access and development, as well as continuing monitoring. Therefore, Alternative 2 offers the highest degree of protection of human health and the environment of the two alternatives considered. Any future activities at the site would be coordinated with VAFB environmental personnel who know the findings of the RI conducted at the site.

2. Compliance with Applicable or Relevant and Appropriate Requirements

Alternative 2, Institutional Controls, is the only alternative that would comply with all ARARs. Applicable requirements would not be addressed by Alternative 1, No Action, because no actions would be taken.

The ARARs for Site 18 are as follows:

- Chemical-Specific ARARs
  - USEPA Region IX Preliminary Remediation Goals (PRGs).
  - California Leaking Underground Fuel Tank (LUFT) action levels.
- Location-Specific ARARs
  - None Apply
- Action-Specific ARARs
  - California Code of Regulations (CCR), Title 27, Section 21135. Security at closed sites. Requires site security, including signs and restriction of access to closed landfill sites to protect public health and safety.
  - CCR, Title 22, Section 67391.1. Requirements for Land Use Covenants. Requires that appropriate measures be in place to ensure proper future land use. Specific provisions of 22 CCR § 67391.1 have been determined by the Air Force to currently be relevant and appropriate requirements for the Site 18 remedy. Subsections (a), (b) and (e)(2) of this regulation provide that if a remedy at property owned by the federal government will result in levels of hazardous substances remaining on property at levels not suitable for unrestricted use, and it is not feasible, as is the case with Site 18, to record a land use covenant, then the record of decision is to clearly define and include limitations on land use and other institutional control mechanisms to ensure that future land use will be compatible with the levels of hazardous substances remaining on the property. These limitations and mechanisms are more specifically set forth elsewhere in this ROD, to include annotating the use and activity restrictions and controls in the VAFB General Plan, and continuing to implement review and approval procedures for any construction and ground disturbing activities in Site 18.

3. Long-term Effectiveness and Permanence

Only Alternative 2 would be sufficient in assuring that controls would be in place to restrict future activities at the site.

4. Short-term Effectiveness

Both alternatives would offer short-term effectiveness. There would be no impact to the community, on-site workers, or the environment with the implementation of either alternative.

5. Reduction of Toxicity, Mobility and Volume Through Treatment

Since no contaminants requiring treatment were identified at Site 18, this criterion does not apply.

6. Implementability

Alternatives 1 and 2 are both considered readily implementable. Alternative 2 requires more action than Alternative 1, but because the actions described are simple, this alternative is only slightly less implementable than Alternative 1.

7. Cost

Alternative 1 is the lower cost alternative since it only involves preparing a site status report every five years. There are no capital costs associated with the no action alternative. The cost of Alternative 2 is higher due to the actions involved.

8. Regulatory Agency Acceptance

The DTSC and the RWQCB have provided input during past investigation at Site 18, have concurred with the recommendation for no further investigation of the site, and support the Institutional Controls alternative.

9. Community Acceptance

The draft ROD/RAP was submitted to the VAFB CAB for review. The CAB reviewed the document and submitted comments that are included in Section 3.1. The general public was provided the opportunity to comment on the draft ROD/RAP through the 30-day comment period. No comments were provided during the public comment period.

## **2.11 PRINCIPAL THREAT WASTES**

There are no known principal threat wastes, based on the limited sampling conducted at Site 18. However, because sampling is limited, the potential presence and therefore threat of UXO and other contaminants cannot be ruled out.

## **2.12 SELECTED REMEDY**

### **2.12.1 Summary of the Rationale for the Selected Remedy**

Based on consideration of the requirements of Health and Safety Code Section 25356.1 and the detailed analysis of the alternatives using the nine criteria, the proposed remedy for Site 18 is Alternative 2, Institutional Controls.

### **2.12.2 Description of the Selected Remedy**

The following implementation, inspection and maintenance recommendations and guidelines will be followed under the Selected Remedy.

- The VAFB General Plan is used as the master planning document for documenting and approving all land use designations and land use restrictions. It is also the master plan for approving proposed development. The VAFB General Plan will be amended to record the land use designations and restrictions. It will state: "This Site is Off Limits." If the Air Force requires a change in the land use as set forth in this ROD, the Air Force will follow applicable requirements as directed by 40 CFR Part 300. The planning phase for all construction activities requires extensive coordination using the 30 SW Form 35. This form is a checklist for coordination through all applicable offices on VAFB, such as Safety, Utilities, Environmental, Real Estate, VAFB Planning, and Fire Department. This form must be completely coordinated and approved by all applicable offices during the design phase of construction projects. The Environmental Office, which includes the Restoration Program Office, coordinates and approves all Form 35s. Prior to coordinating, the Environmental Office reviews the VAFB General Plan. Designs cannot be finalized and construction cannot begin without a completed Form 35. This provides all necessary checks and balances to help ensure that no construction is done at an IRP site in violation of land use restrictions.
- The boundaries of the site will be defined in the VAFB GIS. The VAFB GIS is a coordinate based mapping system that will record the boundaries of Site 18 as defined in the RI (Jacobs, 1997).
- Five signs will be posted at regular intervals around the site boundary to act as a warning to potential site visitors and to define the boundaries of Site 18 (Figure 2-3). The signs will state the following: "This site has been investigated under the IRP and any activities at the site must have prior approval of 30 CES/CEVR. For further information call 805-606-3919." Since no fencing or buildings exist at Site 18, signs will be placed on posts sunk into the ground.

- In accordance with CERCLA five-year reviews, monitoring wells 18-MW-4, 18-MW-5 and 18-MW-6, at or near the site, will be monitored at least once every five years. Samples will be analyzed for the following: VOCs, SVOCs, PCBs, total petroleum hydrocarbons in the diesel range, total petroleum hydrocarbons in the gas range, and total and dissolved metals.
- Appropriate regulatory agencies will be notified of proposed land use changes that are inconsistent with the use restrictions and assumptions described herein or property interest transfers in accordance with CERCLA § 120(h).
- The Air Force agrees that if in the future it transfers to nonfederal entities any portion of the Site 18 property that is not suitable for unrestricted use, it will comply with certain provisions of current Title 22, California Code of Regulations, § 67391.1 and, to the extent authorized by law, execute a land use covenant described therein that incorporates the limitations on land use and other appropriate institutional controls contained in this record of decision. If such a transfer of Site 18 property is planned, the Air Force will whenever possible notify and consult with USEPA and California DTSC six months in advance of such transfer to ensure such certain provisions of this regulation are identified and met. If it is not possible to provide such notification and consultation six months in advance, the Air Force shall provide this notification and consultation as soon as possible, but not later than sixty days prior to the transfer of such property. The Air Force will, if and as required by 40 CFR § 300.435(c), revise this record of decision to incorporate the specific provisions of this regulation that will be met.
- For five-year reviews under CERCLA a report will be written every five years to document site status and report land use changes. The report will include, but is not limited to:
  - Warning sign inspection and maintenance records
  - VAFB GIS amendment records
  - Completed monitoring well development forms, chains of custody and analytical results
  - Land use change records
  - Additional proposed site inspection work or development at, or immediately adjacent to Site 18
- Vandenberg Environmental Management Flight, Restoration will be responsible for administering the Site 18 institutional controls.

### 2.12.3 Summary of Estimated Remedy Costs

Proposed costs of the selected remedy were calculated in the FFS (Jacobs, 1998). They have been updated to reflect changes made during the ROD/RAP preparation process. Table 2-3 presents the estimated capital and annual costs respectively. The capital cost for posting signs is estimated to be \$13,000. Annual operation and maintenance (O&M) costs for sign maintenance, groundwater monitoring, and report preparation is \$3,540 (Table 2-3). Using a discount rate of 5 percent and a time period of 340 years, the present worth cost for Alternative 2 is approximately \$83,800.

**TABLE 2-3**  
**ESTIMATED COSTS FOR ALTERNATIVE 2, INSTITUTIONAL CONTROLS**

<b>Capital Costs</b>				
<b>Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Item Cost</b>
1. Posting of Signs	5	Lump Sum	\$2,000	\$10,000
Subtotal – Estimated Construction Cost				\$10,000
Bid Contingency (10%)				\$1,000
Scope Contingency (20%)				\$2,000
Total Estimated Capital Cost				\$13,000
<b>Estimated Annual O&amp;M Costs</b>				
<b>Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Item Cost</b>
1. Maintenance on Posted Signs	5	Each	\$50	\$250
2. Five-Year Evaluation Report*	0.2	Lump Sum	\$10,000	\$2,000
3. Groundwater Monitoring*	0.2	Lump Sum	\$3,500	\$700
Subtotal – Estimated Construction Cost				\$2,950
Scope Contingency (20%)				\$590
Total Estimated O&M Cost				\$3,540

\* Assume 1/5 report and 1/5 groundwater sampling charged each year

The information in this cost estimate table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial

alternative. Major changes may be documented in the form of a memorandum in the Administrative Record File, an ESD or a ROD amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

#### **2.12.4 Expected Outcomes of the Selected Remedy**

It is not anticipated that the site will be made available for any future development that is inconsistent with its past use as a landfill on a military base, nor will such use be allowed. Future programs may confirm or deny the presence of UXO at this site. If, in the future, it can be established in accordance with legal requirements that no UXO or other hazardous substance above action levels is present at this site, deep soil samples could be collected within the boundaries of the landfill and clean closure could potentially be achieved for Site 18. On the other hand, if UXO is detected or other hazardous substances are determined to be in the soil or groundwater, the Air Force will reevaluate the sufficiency of the selected remedy.

### **2.13 STATUTORY DETERMINATIONS**

Under CERCLA §121, the lead agency (which, under CERCLA, is the Air Force) must select remedies that are protective of human health and the environment, comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and are cost effective. This remedy uses institutional controls to restrict access to potentially affected media and to prevent any site use that may not be compatible with past site activities.

#### **2.13.1 Protection of Human Health and the Environment**

Although the RI for Site 18 indicates that the site does not pose a risk to human health or the environment, complete sampling data were not collected within the site boundaries because of potential UXO. Therefore, risks to future on-site receptors are uncertain. The major advantage of the proposed alternative is that it meets the RAO and provides additional safeguards to human health and the environment. If no actions were taken at the site, unauthorized development of the



site area may occur. Representatives of the regulatory agencies (DTSC and RWQCB) have expressed concern that institutional controls are necessary at Site 18 to prevent potential development of the site area that may not be compatible with the past site use.

#### **2.13.2 Compliance with Applicable or Relevant and Appropriate Requirements**

No location-specific ARARs apply to Site 18. Alternative 2 would meet the chemical-specific and action-specific ARARs identified in Section 2.10.

#### **2.13.3 Cost-Effectiveness**

The only difference in cost between the No Action alternative and the preferred alternative is the capital costs required for posting the signs and an annual cost for checking and maintaining the signs and sampling the groundwater monitoring wells incurred by the preferred alternative. These costs are relatively small and would be outweighed by the benefits of safeguarding human health and the environment, long-term effectiveness, and compliance with regulatory ARARs.

#### **2.13.4 Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable**

No contaminants have been identified that require treatment. However, due to the uncertainty that still exists about the exact nature of potential contaminants in the subsurface soil within the site boundaries, institutional controls are required to ensure that future land use is compatible with the site's history as a military landfill.

#### **2.13.5 Preference for Treatment as a Principal Element**

No contaminants have been identified at Site 18 that require treatment. This criterion therefore does not apply.

#### **2.13.6 Five-Year Review Requirements**

Because this remedy will result in possible contaminants remaining on site above levels allowing for unlimited use and unrestrictive exposure, reviews will be conducted at least every five years after commencement of the remedial action to assure that the remedy continues to provide adequate protection of human health and the environment.

#### **2.14 DOCUMENTATION OF SIGNIFICANT CHANGES FROM PREFERRED ALTERNATIVE OF PROPOSED PLAN**

The ROD/RAP was released for public comment in September 2002. The ROD/RAP identified Alternative 2, Institutional Controls as the preferred alternative. No issues were raised during the comment period. It was determined that no significant changes to the remedy, as identified in the ROD/RAP, were necessary or appropriate.

### **3.0 RESPONSIVENESS SUMMARY**

#### **3.1 STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES**

The ROD/RAP was submitted to the VAFB CAB for review. The CAB Document Review Subcommittee reviewed the ROD/RAPs for Sites 18 and 22 and submitted the following comments and recommendations on 25 July, 2002. Below are the VAFB responses.

**Comment No. 1:** The term “UXO” is not defined in the Site 18 document. The first time the term is used it should be delineated as “unexploded ordnance.” In addition, UXO should be placed on the list of Acronyms and Abbreviations.

**Response:** Concur. The first time the term UXO is used, it will be identified as “unexploded ordnance”. In addition, UXO will be added to the list of Acronyms and Abbreviations.

**Comment No. 2:** Since UXO is present at both sites, it should be discussed under Section 4<sup>1</sup> as a risk associated with the sites. Even if risk due to UXO is mitigated, considered minimal or handled in some other way, it should be addressed in the document.

**Response:** The potential presence of UXO in the landfills will be discussed in greater detail.

**Comment No. 3:** Both documents refer to the “presumptive remedy for landfills” in Section 5<sup>2</sup>. This phrase should be discussed and defined, as it appears to be a general standard used to evaluate such sites. The reader, however, may be unfamiliar with it.

**Response:** Concur. The presumptive remedy for landfills will be defined and discussed in greater detail in Section 5.

**Comment No. 4:** In both documents the terms “Base” and “VAFB” are used interchangeably. This practice is confusing; the documents should use only one of these terms to refer to Vandenberg AFB.

**Response:** Concur. The term “VAFB” will be substituted for “Base” throughout the documents.

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<sup>1</sup> Section 4 of the Public Draft ROD/RAP is now included in Section 2.7 of the current document.

<sup>2</sup> Section 5 of the Public Draft ROD/RAP is now included in Section 2.9 of the current document.

**Comment No. 5:**      **Overall the reviewers found the document well written. With minor adjustments to these documents the general public should be able to understand and appreciate the actions to be taken by the Air Force to protect human health and the environment in regard to these sites.**

Response:              Concur.

The ROD/RAP was submitted for public review and comment for a period of one month. The public comment period began September 3, 2002 and extended through October 2, 2002. No public comments were submitted during the public comment period.

In addition, a public meeting was conducted on September 12, 2002. A briefing on the proposed plan was presented and a formal oral comment period was made available for those who wanted to voice their comments. A transcript of the public hearing proceedings is included in Appendix B.

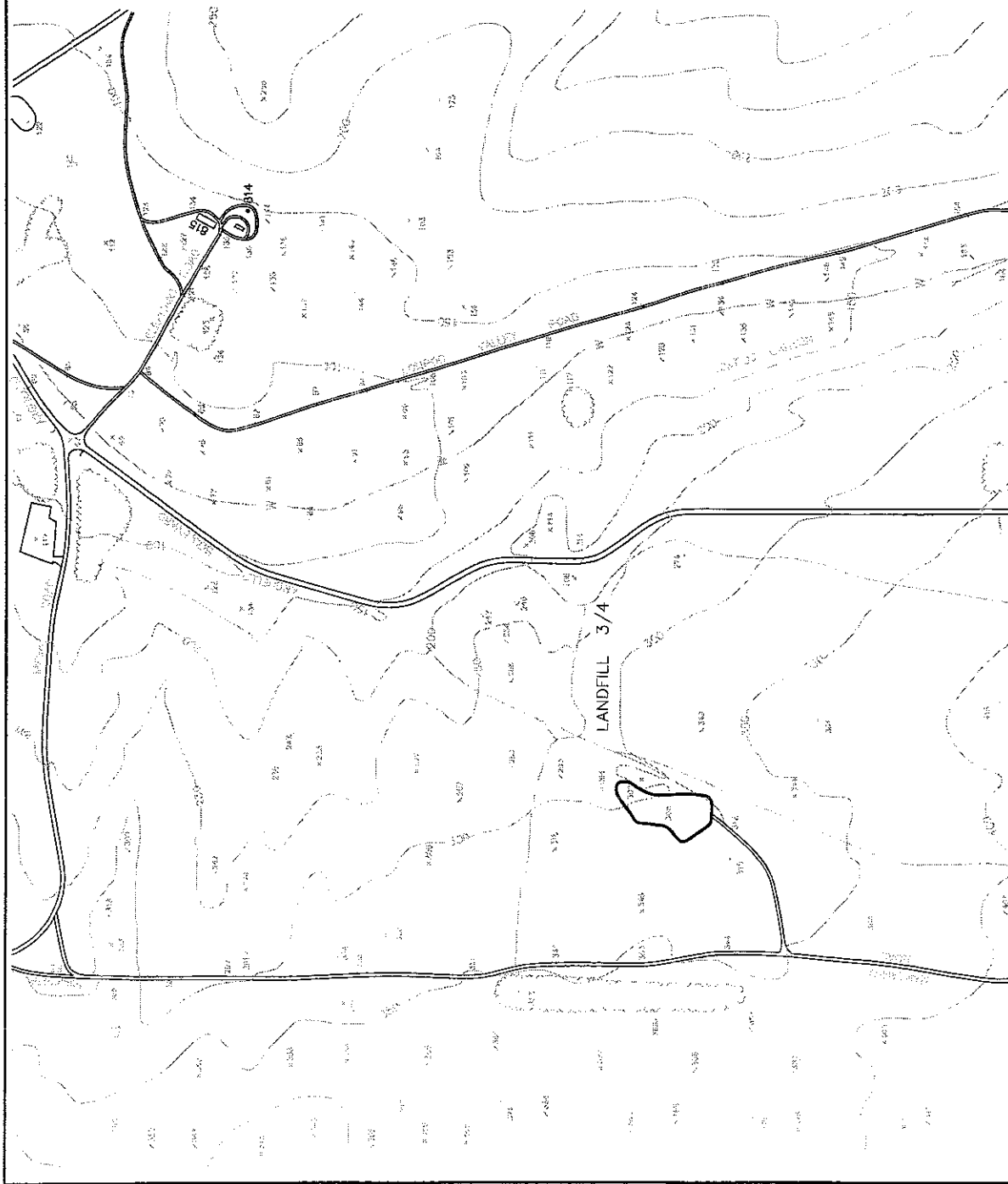
### **3.2            TECHNICAL AND LEGAL ISSUES**

No technical or legal issues have been identified.

#### 4.0 REFERENCES

- California Military Environmental Coordination Committee, 1998. Institutional Control Protocol at Open Bases. California Military Environmental Coordination Committee. January.
- Department of the Air Force, 30th Space Wing, 2000. Vandenberg Air Force Base General Plan. January.
- Deputy Under Secretary of Defense, 2001. Policy on Land Use Controls Associated with Environmental Restoration Activities. Memorandum from DUSD (Environmental Security). January 17.
- Department of Toxic Substances Control, 1995. Remedial Action Plan (RAP) Policy. Document No. EO-95-007-PP. December.
- Jacobs Engineering Group Inc., 1993. IRP Remedial Investigation/Feasibility Study (OUs 1, 2, 3B, 4 and 5) Work Plan, Vandenberg Air Force Base. March.
- Jacobs Engineering Group Inc., 1997. Final Remedial Investigation Report, Site 18 – Landfill 3/4. April 14.
- Jacobs Engineering Group Inc., 1998. Site 18 – Landfill 3/4 Focused Feasibility Study. March.
- Science Applications International Corporation, 1990. Final Report, IRP Stage 1, Site Characterization Vandenberg AFB, California. Prepared for HQ SAC/DEPV, Offutt AFB, Nebraska and USAF, Human Systems Division, IRP Program Office, Brooks AFB, Texas. SAIC, Environmental Remediation Division. April.
- U. S. Environmental Protection Agency, 1996. Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills (Interim Guidance). Office of Solid Waste and Emergency Response Direction No. 9355.0-62FS. April.
- U. S. Environmental Protection Agency, 1999. A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents. July.
- U. S. Environmental Protection Agency, 2001. Comprehensive Five-Year Review Guidance. EPA 540-R-01-007. June.

## FIGURES



# LEGEND

200

CONTOUR LINE

FENCE

ROAD AND STREET

BUILDING

VEGETATION LINE

WET DRAINAGE ROUTE

WET AREA

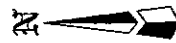
SITE BOUNDARY (JACOBS)

SPOT ELEVATION

18-MW-i

ATER

X 445



SCALE IN FEET



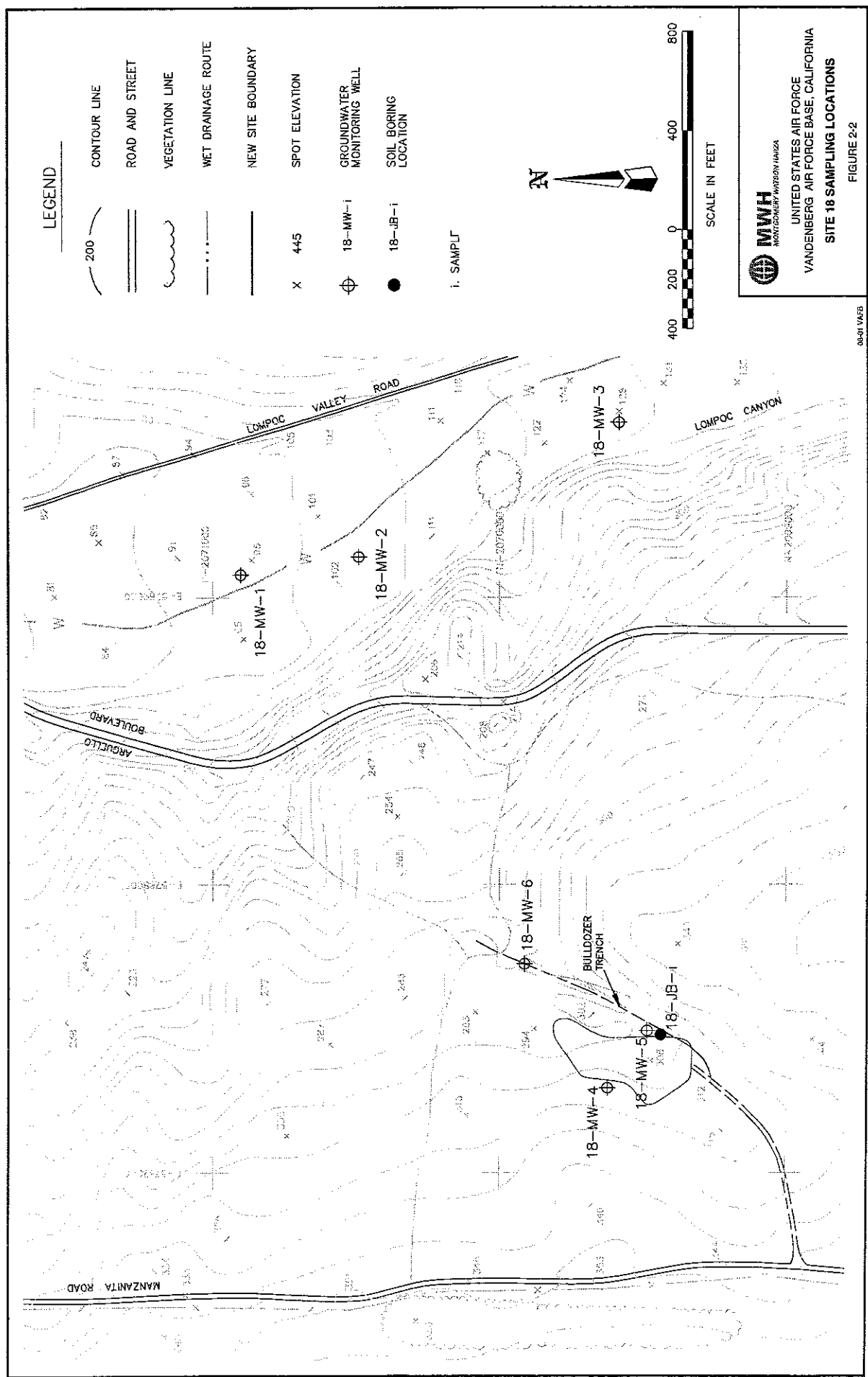
MONITORING/ANALYSIS

UNITED STATES AIR FORCE  
VANDENBERG AIR FORCE BASE, CALIFORNIA

SITE 18 SITE PLAN

FIGURE 2-1

08-01-1979

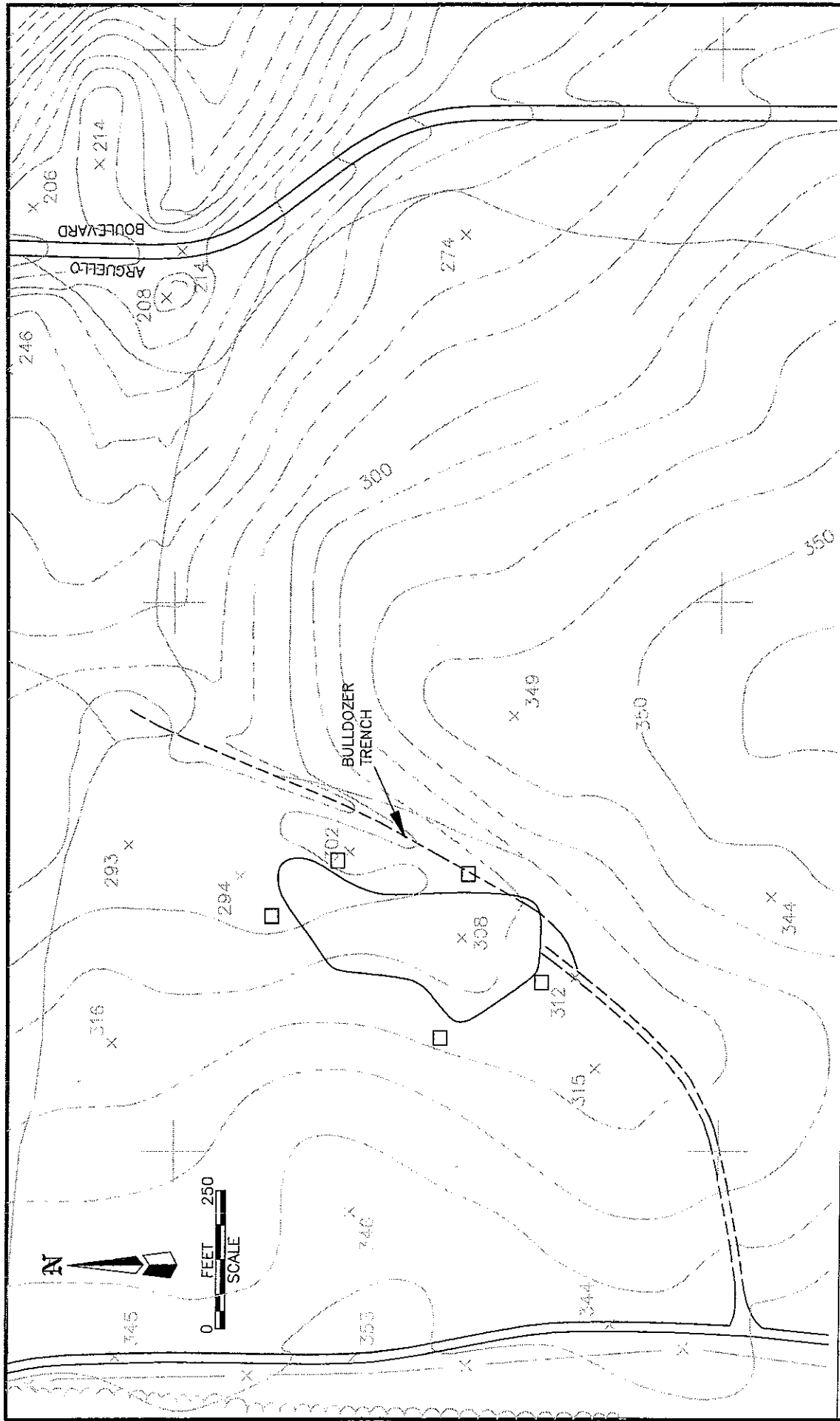


**MWH**  
 MONTGOMERY WATSON HARZAR  
 UNITED STATES AIR FORCE  
 VANDENBERG AIR FORCE BASE, CALIFORNIA  
 SITE 18 SAMPLING LOCATIONS

FIGURE 2-2

0801 VAFB





# LEGEND

- CONTOUR LINE
- ROAD AND STREET
- VEGETATION LINE
- WET DRAINAGE ROUTE
- SPOT ELEVATION
- WARNING SIGN



**MWH**  
MONTGOMERY WATSON HARZA

UNITED STATES AIR FORCE  
VANDENBERG AIR FORCE BASE, CALIFORNIA

## SITE 18 WARNING SIGN LOCATIONS

FIGURE 2-3

**APPENDIX A**  
**ADMINISTRATIVE RECORD LIST FOR SITE 18**

## APPENDIX A

### ADMINISTRATIVE RECORD LIST FOR SITE 18

Date	Author	Title
April 1990	Science Applications International Corporation	IRP Stage I Site Characterization, Final Report Volume I.
March 1993	Jacobs Engineering Group Inc.	IRP Remedial Investigation/ Feasibility Study (OUs 1, 2, 3B, 4 and 5).
September 1994	Department of Toxic Substances Control	State (DTSC and Regional Board) comments on Site 18, Preliminary Draft RI Report, July 1994.
July 1996	Regional Water Quality Control Board	Regional Board comments on Site 18, Draft Final RI Report, March 1996 and Site 22, Draft Final RI Report, January 1996 (the State did not receive a draft Site 22 RI Report).
April 1997	Jacobs Engineering Group Inc.	Remedial Investigation Report, Site 18 -- Landfill 3/4, Final (Volume IV).
December 1997	Department of Toxic Substances Control	State (DTSC and Regional Board) comments on Site 18 Draft Focused Feasibility Study, October 1997 and Site 22 Draft Focused Feasibility Study, October 1997.
January 1998	Jacobs Engineering Group Inc.	Response to comments from DTSC, Sites 18 and 22, Draft Focused Feasibility Study, dated October 1997.
March 1998	Department of Toxic Substances Control	State (DTSC and Regional Board) comments on Site 18 Draft Final Focused Feasibility Study, January 1998 and Site 22 Draft Final Focused Feasibility Study, January 1998.

Date	Author	Title
March 1998	Jacobs Engineering Group Inc.	Site 18 – Landfill 3/4, Final Focused Feasibility Study (01-G464-M6-0049).
November 1998	Regional Water Quality Control Board	Regional Board comments on Remedial Action Plan, Site 18 and Site 22, August 1998.
November 1998	Department of Toxic Substances Control	DTSC comments on Remedial Action Plan, Site 18 and Site 22, August 1998.
November 2000	Department of Toxic Substances Control	Comments on Draft Remedial Action Plan for Site 18 and Site 22.
November 2001	Department of Toxic Substances Control and Regional Water Quality Control Board	State (DTSC and Regional Board) comments on Remedial Action Plan, Site 18 and Site 22, October 2001.
December 2001	MWH	Response to comments on Draft Remedial Action Plan.
January 2002	Department of Toxic Substances Control and Regional Water Quality Control Board	State (DTSC and RWQCB) comments on Remedial Action Plan for Site 18 and Remedial Action Plan for Site 22 dated 21 December, 2001.
May 2002	MWH	Final Response to State comments on the Remedial Action Plan for Site 18 and Remedial Action Plan for Site 22 dated December 2001.

**APPENDIX B**  
**COURT REPORTER'S TRANSCRIPT OF PUBLIC HEARING PROCEEDINGS**

CONDENSED COPY

REPORTER'S TRANSCRIPT OF PROCEEDINGS

INSTALLATION RESTORATION PROGRAM

SITES 18 and 22

RECORD OF DECISION/REMEDIAL ACTION PLANS

VANDENBERG AIR FORCE BASE, CALIFORNIA

PUBLIC HEARING

HANCOCK COLLEGE, LOMPOC CAMPUS

LOMPOC, CALIFORNIA

THURSDAY, SEPTEMBER 12, 2002

10:10 A.M.

REPORTED BY:  
KATHERINE H. KAPLANEK  
CSR 2971, RPR



(805) 489-2347

P.O. Box 213  
ARROYO GRANDE, CA 93421

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9 REPORTER'S TRANSCRIPT OF PROCEEDINGS  
10 INSIALATION RESTORATION PROGRAM  
11 SITES 18 and 22  
12 RECORD OF DECISION/REMEDIAL ACTION PLANS  
13 VANDENBERG AIR FORCE BASE, CALIFORNIA  
14 PUBLIC HEARING  
15 HANCOCK COLLEGE, LOMPOC CAMPUS  
16 LOMPOC, CALIFORNIA  
17 THURSDAY, SEPTEMBER 12, 2002  
18 10:10 A M  
19  
20  
21 REPORTED BY:  
22 KATHERINE H KAPLANEK  
CSR 2971, RPR

1 THE INSTALLATION RESTORATION PROGRAM  
2 SITES 18 and 22  
3 RECORD OF DECISION/REMEDIAL ACTION PLANS  
4 VANDENBERG AIR FORCE BASE, CALIFORNIA  
5 PUBLIC HEARING  
6 was conducted at Allan Hancock College, Lompoc  
7 Campus, One Hancock Drive, Lompoc, California,  
8 verbatim reported by Katherine H. Kaplanek, CSR and  
9 Registered Professional Reporter in and for the  
10 State of California, on Thursday, September 12,  
11 2002, commencing at the hour of 10:10 a.m.

APPEARANCES:

13 LT. COL. SCOTT WESTFALL, Vandenberg Air Force  
14 Base Environmental Flight, Presiding  
15 Panel Members:  
16 BEATRICE KEPHART, Vandenberg Air Force Base  
Environmental Flight

17 DR NING-WU CHANG, Department of Toxic  
18 Substances Control, Cypress, California  
19 BILL MEECE, Regional Water Quality Control  
Board, San Luis Obispo

20 KIM FOREMAN, Public Relations, Department of  
21 Toxic Substances Control, Cypress, California  
22 CHRISTOPHER R. BARTOS, Principal Environmental  
23 Scientist, Project Manager for Montgomery Watson  
Harza

1 LOMPOC, CALIFORNIA  
2 THURSDAY, SEPTEMBER 10, 2001  
3 10:10 A.M.  
4 -- oOo --  
5  
6 MS. KEPHART: Well, good morning, everyone. I  
7 think we'll probably get started now. It's a  
8 little bit after 10:00.  
9 I'd like to welcome everyone. This is our  
10 public meeting on the proposed land use controls at  
11 our IRP Sites 18 and 22. And these were former  
12 landfill sites  
13 I'd like to introduce a few people. And  
14 if you could, stand as I call your name.  
15 I'd like to introduce Colonel Westfall,  
16 who is my boss and will be giving a talk in a few  
17 minutes  
18 We have Mr. Bill Meece with us from the  
19 Regional Water Quality Control Board up in San Luis  
20 Obispo.  
21 Dr. Ning-Wu Chang from the Department of  
22 Toxic Substances Control in Cypress.  
23 And Ms. Kim Foreman, and she is a  
24 community relations person down at the DTSC in  
25 Cypress also. Okay.

1 There will be time for comments following  
2 Lieutenant Colonel Westfall's talk, and these --  
3 your comments will be addressed in the -- in  
4 writing in the Final Decision document.

5 And because of the nature of this meeting,  
6 we're not really going to accept any questions or  
7 answer any questions; won't be a  
8 question-and-answer session. But you're welcome to  
9 stay for the CAB meeting that starts at 11:00 and  
10 we can answer a few questions there, if you need  
11 to

12 I'd like to turn it over to Colonel  
13 Westfall for his talk.

14 L.T. COL. WESTFALL: Thank you, Bea  
15 In preparation for this public meeting,  
16 Bea provided me with a script and she said, "No  
17 ad-libbing, Westfall. You have to follow the  
18 script."

19 And people who have been at farewells and  
20 little roasts with me know that that's really quite  
21 a tasker that she's attempting to lay on me because  
22 I don't know that I can do that, but I'll certainly  
23 give it my best

24 In fact, I originally thought I was going  
25 to be late getting here because I was in a video

<p>1 teleconference with my headquarters, and I  2 erroneously thought that the video teleconference  3 was from 8:00 to 9:00, but it turned out it was  4 from 8:00 to 10:00. And I'm going, "Uh-oh, you  5 know, we have a situation and I've got to find a  6 way to escape my headquarters." Because, you know,  7 I'll tell you a secret, folks. You know, there is  8 only one thing worse than video teleconference with  9 the headquarters, and that's when your headquarters  10 comes to pay you a visit like an inspection or  11 something like that. Oh, I see a headquarters  12 person here. She's smiling and enjoying it.  13 Because, you know, that way, you know that the  14 meeting is going to start off with two lies. The  15 first one, of course, where the headquarters says  16 "We're here to help you" and then you lie right  17 back and say, "Well, we're glad you're here."  18 But I do want to take this opportunity to  19 say that I'm glad that all of you are here for  20 today's public meeting. And, with that, I'll begin  21 with the script.  22 Good morning, Ladies and Gentlemen. I'd  23 like to welcome you to the public meeting on the  24 Record of Decision/Remedial Action Plans, called  25 the Draft ROD/RAPs for former Landfill Sites 18 and</p> <p style="text-align: right;">5</p>	<p>1 22 at Vandenberg Air Force Base.  2 I'm Lieutenant Colonel Scott Westfall of  3 Vandenberg Air Force Base Environmental Flight. I  4 will serve as the presiding officer for this  5 meeting.  6 My purpose this morning is to present an  7 overview of the Draft ROD/RAPs and ensure that  8 everyone who wishes to provide input or make a  9 comment has a fair opportunity to speak and be  10 heard.  11 And I just now realize I'll slow down just  12 a little bit for you.  13 We have with us today Mr. Chris Bartos,  14 the project manager for MWH. MWH is under contract  15 to the Air Force and has helped evaluate the  16 alternatives for these sites and prepared the Draft  17 ROD/RAPs.  18 This meeting will be in two parts. The  19 first part of the meeting will present you with  20 information on Sites 18 and 22 Draft ROD and RAPs.  21 The second part is the public comment  22 portion. This is when you will have an opportunity  23 to provide information or to make a statement for  24 the record. Your input will provide the Air Force  25 with the benefit of your knowledge of the local</p> <p style="text-align: right;">6</p>
<p>1 area and any environmental effects, whether adverse  2 or beneficial, that you think may result from the  3 proposed action or alternatives.  4 Separate documents have been prepared for  5 Sites 18 and 22. Each of these documents has been  6 prepared with the dual purpose of satisfying the  7 requirements of both a ROD and a RAP.  8 The ROD is the decision document under the  9 Comprehensive Environmental Response Compensation  10 and Liability Act of 1980, whereas the RAP is the  11 decision document under the California Health and  12 Safety Code.  13 Both documents serve a similar purpose  14 and, therefore, have been combined into one  15 decision document for each of these sites.  16 The ROD/RAP provides background on the  17 site, outlines the goals of the remedy, summarizes  18 the alternatives and explains the rationale for  19 remedy selection.  20 The review process for the ROD/RAP is the  21 means by which the public may provide input into  22 the decision-making process and is a critical  23 component of the remedy selection process.  24 Site 18: Site 18 is in south Vandenberg  25 Air Force Base, approximately one and a half miles</p> <p style="text-align: right;">7</p>	<p>1 south of the south gate just west of Arguello Road.  2 The former landfill site covers approximately two  3 acres and there are no buildings within or near the  4 site boundaries. The site is presently covered  5 with soil and natural vegetation.  6 Disposal operations at Site 18 started in  7 the mid to late 1960s. Materials disposed of at  8 the site were primarily construction debris from a  9 launch complex and a power plant.  10 Visual inspections of the site indicate  11 that other debris including asphalt, broken wood  12 pallets, and pieces of PVC pipe have also been  13 deposited.  14 Site 22: Site 22 is west of the  15 Cantonment Area, southeast of the intersection of  16 35th Street, New Mexico Avenue and Terra Road.  17 This former landfill covers approximately five  18 acres.  19 Waste disposed of at the site primarily  20 consisted of construction debris, although small  21 quantities of waste oils and solvents were also  22 reported. Site 22 was never a former landfill;  23 however, construction debris was buried at the  24 site.  25 The geophysical survey indicated that Site</p> <p style="text-align: right;">8</p>



<p>1 22 was used for the surficial disposal of a small 2 amount of construction debris. This was also 3 supported by historical aerial photography review. 4 The only subsurface anomaly reported was identified 5 as a buried pipe 6 Sites 18 and 22 were investigated under 7 the Installation Restoration Program at Vandenberg 8 as part of the base-wide program to investigate 9 hazardous waste sites for their potential impact to 10 human health and the environment 11 Remedial investigations were conducted 12 in accordance with work plans approved by the 13 Department of Toxic Substances Control and the 14 Regional Water Quality Control Board 15 A number of investigation activities were 16 conducted for these sites including records search 17 and interviews, aerial photography review, well 18 inventory, geophysical fiscal surveys and soil gas 19 surveys. 20 There is no direct evidence that 21 unexploded ordnance was ever disposed of at Site 18 22 or Site 22. However, due to the possible presence 23 of unexploded ordnance at any military landfill, 24 deep soil borings were not advanced within the 25 boundaries of these sites. Instead, soil samples</p> <p style="text-align: right;">9</p>	<p>1 were collected from shallow borings within the 2 landfill boundaries 3 In addition, soil and groundwater samples 4 were collected from deep borings near the perimeter 5 of the landfills and from upgradient and 6 downgradient groundwater monitoring wells to 7 determine if potential leachate was migrating 8 off-site. Potential contaminants would have been 9 carried or leached to these off-site locations 10 Metals slightly above background were 11 detected only in deep soil samples from 50 to 225 12 feet below ground surface with respect to Site 18 13 and likely represent natural lithologic variations. 14 No organic compounds other than low 15 concentrations of petroleum hydrocarbons below the 16 100 milligram per kilogram action level were 17 detected in the soil. Groundwater samples from six 18 monitoring wells detected petroleum hydrocarbons 19 well below the action level and zinc above the 20 background threshold but below the regulatory 21 criteria, the Maximum Contaminant Level, or MCL. 22 Based on the open space land use 23 designation and the detected analytes, the Remedial 24 Investigation concluded that the site poses no 25 immediate risk to human health and the environment</p> <p style="text-align: right;">10</p>
<p>1 The evaluation indicated that the 2 concentration of metals reported in shallow soil 3 samples do not pose a risk or hazard to on-site 4 receptors. However, a potential still exists for 5 the presence of unknown substances or materials 6 below the surface which may create a risk, should 7 the land use change in the future. 8 With respect to Site 22 findings, only low 9 concentrations of volatile organic compounds were 10 detected in soil at or near Site 22. No other 11 organic compounds or metals above background levels 12 were detected in soil or groundwater 13 A soil gas survey conducted at Site 22 14 detected no volatile organic compounds other than 15 methane at a low concentration. The only 16 site-related data gathered for the Remedial 17 Investigation that may pertain to exposure to an 18 on-site worker or ecological receptor is the 19 methane reported in the soil gas survey. The 20 maximum concentration of methane was well within 21 the acceptable emission standard. The Remedial 22 Investigation therefore concluded that there are no 23 potential impacts to human or ecological receptors 24 from the measured methane concentrations. 25 Concerning evaluation of alternatives,</p> <p style="text-align: right;">11</p>	<p>1 because a potential still exists for unknown 2 substances or materials to exist below the surface 3 which may create a risk should the land use change 4 in the future, remedial alternatives were evaluated 5 for Sites 18 and 22 through Focused Feasibility 6 Studies. The remedial alternatives for Sites 18 7 and 22 can be summarized together due to the 8 similarities of these two sites 9 In coordination with the DTSC and the 10 Regional Water Quality Control Board, the Air Force 11 prepared a Focused Feasibility Study to evaluate 12 actions that would minimize the potential risks to 13 future on-site receptors. 14 An evaluation of the presumptive remedy 15 for landfills was conducted. Presumptive remedies 16 are preferred technologies based on historical 17 patterns of remedy selection and the U S 18 Environmental Protection Agency's evaluation of 19 performance data on technology implementation. The 20 EPA established source containment as the 21 presumptive remedy for municipal landfills in 22 September 1993 and military landfills in 1996. 23 The components of the containment 24 presumptive remedy are: A landfill cap, 25 groundwater control to contain the plume, leachate</p> <p style="text-align: right;">12</p>

<p>1 collection and treatment, landfill gas collection 2 and treatment, institutional controls to supplement 3 engineering controls.</p> <p>4 Based on site-specific information, the 5 only component of the presumptive remedy applicable 6 to Sites 18 and 22 is institutional controls. 7 Therefore, the Focused Feasibility Study evaluated 8 two alternatives: Institutional controls and the 9 no action alternative.</p> <p>10 The remedial action objective for Sites 18 11 and 22 is to restrict future development, thereby 12 mitigating future potential exposure to possible 13 contamination related to unknown contents of the 14 landfill</p> <p>15 A summary of the alternatives with respect 16 to Alternative 1, the no action alternative: No 17 action involves no remedial action except a report 18 every five years to document site status. It is 19 required that a no action alternative be retained 20 for detailed evaluation as a baseline for 21 comparison</p> <p>22 Alternative 2, institutional controls: 23 Institutional controls are a subset of land use 24 controls and are primarily legal mechanisms imposed 25 to ensure the continued effectiveness of land use</p> <p style="text-align: right;">13</p>	<p>1 restrictions as part of a remedial decision.</p> <p>2 Under the current Vandenberg Air Force 3 Base General Plan, current land use at Sites 18 and 4 22 is open space and there are no plans to change 5 the land use from open space to another 6 designation</p> <p>7 To ensure that no unauthorized activities 8 are conducted, signs would be posted stating that 9 the site has been investigated under the 10 Installation Restoration Program and any activities 11 conducted at the site must have prior approval of 12 the Vandenberg Environmental Management Flight.</p> <p>13 Other components of the institutional 14 controls alternative include recording the 15 boundaries of the site and the land use 16 restrictions in the Vandenberg Geographical 17 Information System and notifying the regulatory 18 agencies should the land use change or property 19 transfer to other ownership, including federal to 20 federal transfers.</p> <p>21 Alternative 2 also includes a report every 22 five years to document site status and report minor 23 land use changes. Major land use changes would 24 require regulator approval.</p> <p>25 The evaluation criteria: The objective of</p> <p style="text-align: right;">14</p>
<p>1 the remedial action is to restrict access and 2 future development at Sites 18 and 22. The no 3 action and institutional controls alternatives were 4 evaluated against nine standard evaluation criteria 5 in the Focused Feasibility Study to determine which 6 alternative best meets the objective of the 7 remedial action.</p> <p>8 These criteria include: One, overall 9 protection of human health and the environment; 10 Two, compliance with state and federal 11 requirements; 12 Three, long-term effectiveness and 13 permanence; 14 Four, short-term effectiveness; 15 Five, reduction of toxicity, mobility and 16 volume through treatment; 17 Six, implementability; 18 Seven, cost; 19 Eight, regulatory agency acceptance; 20 And 9, community acceptance.</p> <p>21 When compared to the criteria, Alternative 22 2, Institutional Controls, was found to be equal or 23 preferable to the No Action Alternative with minor 24 exceptions. Although the requirements are minor -- 25 maintaining signage and updating the Vandenberg</p> <p style="text-align: right;">15</p>	<p>1 General Plan -- there is an incremental cost 2 increase implementing Alternative 2 over the No 3 Action Alternative.</p> <p>4 Concerning the implementation plan: 5 Finally, the ROD/RAPs for Sites 18 and 22 include 6 an implementation plan. This section specifies 7 required actions for implementation of the decision 8 document.</p> <p>9 The actions include: Updating the 10 Vandenberg Air Force Base General Plan by recording 11 the land use designations and restrictions 12 presented in the ROD/RAPs. This is implemented 13 primarily through a Geographic Information System 14 that must be accessed prior to granting building 15 permits or any changes in the land use. The Sites 16 18 and 22 boundaries will be accurately defined in 17 the Geographical Information System.</p> <p>18 Signs will be posted at regular intervals 19 on the landfill perimeters stating, quote, "This 20 site has been investigated under the IRP and any 21 activities at the site must have prior approval of 22 30 CES/CEVR. For further information, call 23 (805)606-3919," end quote.</p> <p>24 Five-year reviews will be conducted 25 including sampling of designated monitoring wells.</p> <p style="text-align: right;">16</p>


<p>1 Regulatory agencies will be notified of 2 proposed land use changes or if property transfer 3 to other ownership occurs. 4 The five-year report will include 5 verification of the implementation conditions of 6 the ROD/RAPs. 7 Vandenberg Environmental Management Flight 8 will be responsible for administering the 9 institutional controls. 10 Concerning the comment procedures as a 11 part of this public meeting, if you wish to speak 12 today, we would like you to fill out and hand in 13 one of the attendance cards. They are available. 14 Ms. Kephart can provide them to you as well as 15 people inside the room here. 16 Please limit your presentation to five 17 minutes so that everyone has an opportunity to 18 speak. If you go over the time limit, you will be 19 asked to conclude your comments. 20 If you need more time to submit your 21 comments, please submit them to us in writing. 22 If you do not want to make an oral 23 statement today but you do want to provide input, 24 you may do so in writing at this time and up until 25 the end of the comment period which is the 2nd of</p> <p style="text-align: right;">17</p>	<p>1 October, 2002. For your convenience, written 2 comment sheets are available at the registration 3 table for your use. We have placed a box next to 4 the microphone where you can drop off written 5 comments or you may mail your written comments to 6 the address shown on the slip on the slide -- we 7 don't have a slide. I apologize. But we can get 8 that address to you. This address is also on the 9 comments sheet. 10 Oral comments will be documented by the 11 court reporter to ensure they are properly 12 addressed in the official record of the ROD/RAP. 13 Any comments that are made orally or that are 14 provided in writing before the end of the comment 15 period will be given equal consideration in the 16 decision-making process. 17 In the final ROD/RAPs, a response will be 18 give not to all comments that are received. If 19 necessary, additional analysis will be performed 20 and the ROD/RAPs will be changed 21 Concerning the comment period, we will now 22 start the public comment portion of this meeting 23 with a few administrative announcements. Please 24 use the microphone so that we can hear you, speak 25 clearly, and direct your comments to me. State</p> <p style="text-align: right;">18</p>
<p>1 your name for the record before you begin. Again, 2 please limit your comments to five minutes. 3 With that, if there is anybody who wishes 4 to make public comments, this is your opportunity. 5 Going once. Okay. 6 It appears that we do not have any public 7 comments at this time. However, I do want to 8 remind you, you certainly have the opportunity to 9 fill out a comment card and provide that to us 10 before your departure or provide it before the end 11 of the comment period because we are interested in 12 your comments 13 This concludes today's public meeting. If 14 you should later decide to make additional 15 comments, you may submit them in writing. Your 16 comments must be post marked by the end of the 17 comment period which is 2 October 2002. 18 Copies of the Draft Final ROD/RAPs are 19 available at the local public libraries. If you 20 wish to receive a copy of the Final ROD/RAPs, 21 please indicate it on a comment sheet or send a 22 written request to the same address. 23 We appreciate your participation in this 24 public meeting. Thank you for coming. 25 MS. KEPHART: We'll take a quick break now and</p> <p style="text-align: right;">19</p>	<p>1 thank everybody for coming to the public meeting 2 part. And we'll take a break for about 15 minutes. 3 We've got some refreshments coming out and then 4 we'll get started with the CAB meeting 5 (Proceedings concluded at 10:30 a.m.) 6 --oOo-- 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p> <p style="text-align: right;">20</p>

1 STATE OF CALIFORNIA )  
 ) SS.  
2 COUNTY OF SAN LUIS OBISPO )  
3

4 I, Katherine H. Kaplanek, CSR 2971,  
5 Registered Professional Reporter, do hereby certify  
6 that pages 1 through 20 comprise a full, true and  
7 correct the transcript of the proceedings had in  
8 the within-entitled matter, verbatim recorded by me  
9 by stenotype on the dates and at the hours herein  
10 written, and thereafter reduced to computerized  
11 transcription under my direction.

12 In compliance with Section 8016 of the  
13 Business and Professions Code, I certify under  
14 penalty of perjury that I am a certified shorthand  
15 reporter, with license number 2971 in full force  
16 and effect.

17  
18 Dated this 23rd day of September 2002.  
19

20  
21   
22 KATHERINE H. KAPLANEK  
23 CSR 2971, RPR  
24  
25

A			
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